

# Development of Disadvantaged Districts Based on Pajale (Rice, Corn, and Soybean) in West Sumatera

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**Abstract**—The Government of Indonesia has regulated the acceleration of food self-sufficiency for rice, corn, and soybean (Pajale) through Minister of Agriculture Regulation No.14 of 2015. It is highly suggested that before the implementation of this program. It is necessary to identify different foods potential from one region to another. Hence, this research aims to identify Pajale commodities that are seeded, analyze the specialization and localization of Pajale commodities, and identify priority of Pajale commodities that can be developed. Using quantitative descriptive method, this research primarily referred to the secondary data from 2011 – 2015. The result shows that rice commodity is only seeded in South Solok, corn commodity is seeded in South Solok and West Pasaman, and soybean commodity is seeded in all of disadvantaged districts in West Sumatera. It is revealed that Pajale commodities are not specialized and centered in disadvantaged districts. Rice commodity is a priority in Solok Selatan, corn commodity is a priority in Pasaman Barat, and soybean commodity is not a priority in any disadvantaged districts of West Sumatera. Thus, it is conclusive that Upsus Pajale program should be implemented to rice commodity in South Solok while corn commodity in West Pasaman.

**Keywords**—*disadvantaged districts, pajale*

## I. INTRODUCTION

It is true that Indonesia had achieved self-sufficiency in rice during the New Order era by way of extensification and intensification. The programs undertaken were land and irrigation development, technological innovation and farming intensification, provision of production facilities, incentives, development of agricultural equipment and machinery services, and institutional development [1]. Unluckily, after several presidential lines of succession, the government can no longer achieve the state of rice self-sufficiency until today.

The current government find it difficult to implement rice self-sufficiency because of insufficient total cultivated land to provide food production for the entire population of Indonesia. Also, the consumption pattern only concentrates on rice [2]. Given this fact, it will not be enough to solely rely on intensification programs to achieve food self-sufficiency. Other steps including extensification or land expansion can also be done to increase food productions and to meet national foods need. However, there are many challenges to face to expand agricultural land, such as functional shift from agricultural land to non-agricultural

land, lack of attractiveness of food agricultures, and limited land despite the ever-increasing population.

Policies to meet food needs, especially rice, have been written in the presidential instruction. Nainggolan in [3] stated that there are some core form of policy which regulates national rice policies, including (1) support to increase productivity, quality, and production, (2) support for rice farmers economic activities diversification, (3) policy to develop handling of grain/rice harvesting, and (4) policy of output prices in the form of rice purchases prices by government.

There are challenges ahead which prevent the current Indonesian government from stopping the ideals of food self-sufficiency. This is proven by the issuance of a regulation from Ministry of Agriculture No. 14 of 2015 on the policy of special efforts to accelerate self-sufficiency of rice, corn, and soybean or known as Upsus Pajale in Joko Widodo's presidency. This policy is expected to be implemented in planned programs to achieve food self-sufficiency in every region as previously determined.

West Sumatera has three disadvantaged districts under Presidential Regulation No. 131 of 2015 on the Determination of Disadvantaged Districts, which are Mentawai Island, West Pasaman, and South Solok. Section 2 of the Presidential Regulation mentioned that a region is categorized as disadvantaged districts based on society's economy, human resources, facilities and infrastructures, local financial capacity, accessibility, and regional characteristics. [4] stated that there are some strategies to be done to accelerate the development of disadvantaged districts, such as (1) to pay attention in community development, (2) to direct agriculture sectors to agribusiness system, (3) to improve accessibility and resources mobility, and (4) to increase the added-value of agricultural products.

Based on information obtained from Extension Coordinating Board of West Sumatera, of three remaining disadvantaged districts, only Mentawai Island does not obtain Upsus Pajale program. In addition, based on data derived from Central Bureau of Statistics, from 2011 to 2015, it is revealed that rice production in Mentawai Island is likely to increase, while corn and soybean commodity production tends to decrease. Rice production in South Solok also tends to increase, soybean production tends to decrease, and corn

production fluctuates. The same thing occurs for rice, corn, and soybean production in West Pasaman.

Compared with other districts, these three remaining disadvantaged districts have relatively a lower production of rice, corn, and soybean than others. However, corn commodity production in West Pasaman, has the highest corn production in West Sumatera. Increasing food production, especially rice, corn, and soybean should be enhanced along with the increasing demand. In addition, from those three commodities, soybean has the highest level of consumption throughout Indonesia [5].

To increase the production of rice, corn, and soybean in disadvantaged districts in West Sumatera, it is necessary to focus the analysis to find out the superior food commodities that can be developed. Thus, this research aims to (1) identify Pajale commodities that are seeded in disadvantaged districts, (2) analyze the specialization and localization of Pajale commodities in disadvantaged districts, and (3) identify priority of Pajale commodities that can be developed in disadvantaged districts.

## II. METHODS

### A. Sample

This research observed three disadvantaged districts in West Sumatera under Presidential Regulation No. 131 of 2015, which are Mentawai Island, West Pasaman, and South Solok.

### B. Data Collection

Data used in this research is secondary data from 2011 to 2015 which obtained from Central Bureau of Statistics. Those data involve production of food commodities, commodity price, production value, and other data required in this study.

### C. Analysis Tools

#### 1) Location Quotien Analysis

To identify superior Pajale commodities in disadvantaged districts, we use Location Quotien (LQ) analysis, where the LQ equation is followed.

$$LQ = \frac{pi/pt}{Pi/Pt} \quad (1)$$

Where  $pi$  is commodity productions 'i' in district level,  $pt$  is total production of commodity group in district level,  $Pi$  is commodity productions 'i' in province level,  $Pt$  is total production of commodity group in province level. Meanwhile, criteria of LQ is as followed: (1) if  $LQ > 1$  means base sector, i commodity in a region has comparative advantage, (2) if  $LQ = 1$  means non-base sector, i commodity in a region has no comparative advantage, its production is just enough to fulfill the needs of its own region, and (3) if  $LQ < 1$  means non-base sector, which is i commodity in a region cannot fulfill its own needs so this region needs supply from external parties.

#### 2) Specialization & Localization Quotien

To analyze the specialization and localization of Pajale commodities in disadvantaged districts, we use the analysis of Specialization & Localization Quotien, where Specialization Quotien (SQ) is resulted from the following formula:

$$SQ = \left( \frac{wi}{wt} \right) - \left( \frac{Wi}{Wt} \right) \quad (2)$$

Where  $SQ$  is a specialization of Quotien to commodity i,  $wi$  is the production value of food commodity i of districts level in West Sumatera,  $wt$  is the total production value of food commodity i of districts level in West Sumatera,  $Wi$  is the production value of food commodity i in West Sumatera, and  $Wt$  is the total production value of food commodity i in West Sumatera, and  $SQ_{ip}$  is the positive  $SQ_i$ .

If the district SQ value is close to one or  $SQ \geq 1$  then at the district level there is a specialization of food commodity activities. If the SQ is close to zero or  $SQ = 0$  then at the district level there is no specialization for food commodity activities.

To calculate the value of Localization Quotien (LcQ), we use this following equation:

$$LcQ_i = \left( \frac{wi}{wi} \right) - \left( \frac{wt}{wt} \right) \quad (3)$$

Where  $LcQ_i$  is a localization of Quotien to commodity i,  $wi$  is the production value of food commodity i of districts level in West Sumatera,  $wt$  is the total production value of food commodity i of districts level in West Sumatera,  $Wi$  is the production value of food commodity i in West Sumatera,  $Wt$  is the total production value of food commodity i in West Sumatera, and  $LcQ_{ip}$  is the positive  $LcQ_i$ .

If the district LcQ value is close to one or  $LcQ \geq 1$  at the district level there is a concentration in food commodity activities. If the LCQ is close to zero or  $LcQ = 0$  at the district level there is no concentration in food commodity activities.

#### 3) Priority Analysis

Priority food commodities that will be developed in disadvantaged districts are determined on the basis of a combined analysis by looking at the largest LQ and the highest SQ of food commodities in each of the disadvantaged districts. The greater a commodity's LQ, the greater the potential for the commodity's superiority. And also, the highest SQ of any existing commodity means that the commodity has a comparative advantage to be produced in that district. Food commodities that have the greatest LQ and the highest SQ shall be prioritized for better development in any region.

## III. RESULTS AND DISCUSSION

### A. Identification of Superior Pajale Commodities in Disadvantaged Districts

Superior commodity is shown based on LQ value, where the value of  $LQ < 1$ , means that the commodity is not a superior commodity. If the value of  $LQ > 1$ , it means that the commodity is superior. The higher the LQ value in a region, the higher the potential of that superior commodity. It means that export capacity of an area and the degree of self-sufficiency of a commodity is large [6].

Based on the result of LQ analysis in Table 1, it came to knowledge that those three disadvantaged districts in West Sumatera have a different superior commodities. Mentawai Island only has soybean as superior commodity. South Solok has rice, corn, and soybean as superior commodity.

Meanwhile, West Pasaman only has corn and soybean as superior commodity.

Table 1. LQ of Pajale Commodities in Disadvantaged Districts

No.	Districts	Commodities		
		Rice	Corn	Soybean
1	Mentawai Island	0.36	0.19	3.10
2	South Solok	1.02	1.18	2.43
3	West Pasaman	0.48	4.65	3.05

Source: Researcher's Analysis

Each regency in disadvantaged districts has its own food commodity. If superior commodity is developed well, it can boost the economy of a region. Especially if it creates added-value from generated products. In other words, the farmers can sell not only the raw materials, but also sell consumable products. Any food commodity that becomes superior means that the region is able to meet its own needs without importing from other regions. Furthermore, there is a great potential to sell the commodities to other regions with a high demand of those commodities. So, the higher LQ, the higher its contribution to regional economy because of the income from superior commodity production [6].

#### B. Analysis of Specialization and Localization of Pajale's Commodities in Disadvantaged Districts

To find out the specialization of food commodities in disadvantaged districts level in West Sumatera, we use Specialization Quotien (SQ). Based on the result of SQ analysis for rice, corn, and soybean commodity in disadvantaged districts, in Table 2 it is indicated that there is no commodity with greater SQ than one. If  $SQ < 1$  or close to zero, it indicates that the disadvantaged districts have no specialization of any food commodities. However, if SQ is positive, it shows that any disadvantaged districts have a comparative advantage in producing Pajale's commodities.

In general, those three disadvantaged districts do not have  $SQ > 1$  or specialized to Pajale's commodities. Nonetheless, a positive SQ shows that disadvantaged districts have a comparative advantage in Pajale's commodities. So, local government need to increase competitiveness of Pajale's commodities by increasing production and land productivity so they can encourage disadvantaged districts to have a specialization in Pajale's commodities.

Table 2. SQ of Pajale's Commodities in Disadvantaged Districts

No.	Districts	Commodities		
		Rice	Corn	Soybean
1	Mentawai Island	0.525	0.079	0.001
2	South Solok	0.015	0.007	0.001
3	West Pasaman	0.429	0.452	0.001

Source: Researcher's Analysis

This aims to find out the spread or concentrate level of commodity in one region by using Localization Quotien (LcQ). If LcQ is close to one, it means that the availability of Pajale's commodities is well-spread in some regions. If LcQ is close to one, it means that the availability of commodities is concentrated in a disadvantaged districts. Based on LcQ in Table 3, it shows that there is no LcQ that is close to one. It

means that Pajale's commodity spreads in some disadvantaged districts.

Not different from SQ, in general, the disadvantaged districts in West Sumatera have no LcQ greater than one for Pajale's commodities. It indicates that those three disadvantaged districts have the same potential to develop Pajale's commodities because those commodities are spread evenly. The advantage of spread commodities is that the region does not need to import Pajale's commodities because each region is able to produce its own need.

Table 3. LcQ of Pajale's Commodities in Disadvantaged Districts

No.	Districts	Commodities		
		Rice	Corn	Soybean
1	Mentawai Island	-0.001	-0.001	0.003
2	South Solok	0.001	0.003	0.076
3	West Pasaman	-0.055	0.398	0.208

Source: Researcher's Analysis

#### C. Identification of Prioritized Pajale's Commodities to Be Developed in Disadvantaged Districts

The priority of Pajale commodities is determined by using a relatively high LQ and SQ values. Based on this criteria, rice commodity becomes priority only in South Solok. If we refer to the study by [7], it is obvious that rice commodity is not popular in Mentawai Island because most people preferred consuming sago and taro. Corn commodity only becomes priority in West Pasaman in accordance to the Letter of Regional Secretary No. 518/210/Kop.1/III/2018 in [8] research. It is stated that West Pasaman is designated as a district with corn and fisheries as superior commodities. Also, in West Pasaman there is 142,850 hectare area that is potential to be developed by corn commodities [9].

Soybean commodities cannot be categorized as priority in three disadvantaged districts because it has very low SQ value (see Table 7). However, Center for Research and Development of Agricultural Land Resources stated that there is 113,828 hectare land that is suitable and categorized as high potential in West Sumatera for soybean [10]. The table indicates that not all Pajale commodities can be prioritized to develop because each region has different potential.

To find out the prioritized of Pajale's commodities, we decided to use a relatively high LQ and SQ scores. Based on those criteria, rice commodity becomes a priority only in South Solok. The corn commodity only becomes priority in West Pasaman. Meanwhile, soybean commodity cannot be categorized as priority for those disadvantaged districts because it has a very low SQ score (see Table 7). Table 7 shows that not all Pajale's commodity can be prioritized to be developed because every region has its own potential.

Those three disadvantaged districts based on data are not the central of food because they have their own dominant agricultural commodities. For example, West Pasaman and South Solok have a lot of palm plantation. It makes the land area and production of food commodities, especially Pajale, lower than other food commodities. Hence, as compared with

Pajale's production in disadvantaged districts, it is lower than other districts/cities in West Sumatera.

Table 4. Pajale's Commodities Priority in Disadvantaged Districts

No.	Districts	Rice		Corn		Soybean	
		LQ	SQ	LQ	SQ	LQ	SQ
1.	Mentawai Island	0.36	0.525	0.19	0.079	<b>3.10</b>	0.001
2.	South Solok	<b>1.02</b>	<b>0.015</b>	<b>1.18</b>	0.007	<b>2.43</b>	0.001
3.	West Pasaman	0.48	0.429	<b>4.65</b>	<b>0.452</b>	<b>3.05</b>	0.001

Sumber: Table 1 and Table 2

#### IV. CONCLUSION

Disadvantaged districts in West Sumatera have different potentials to develop Pajale commodities. This study reveals that rice commodity is seeded in South Solok, corn commodity is in South Solok and West Pasaman, and soybean is in those three disadvantaged districts. In addition, generally, the disadvantaged districts are specialized to Pajale commodities. As for details, rice commodity becomes a priority in South Solok, corn commodity in West Pasaman, and soybean commodity is not a priority in those three disadvantaged districts.

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